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(ii) A reference collection of specimens of the species, prepared and preserved in a way standard for systematic collections for that taxon, shall be maintained at least through final resolution of the damage action at which time it should be transferred to a major systematic biology collection; or

(iii) In the case of a species where collecting specimens is likely to compromise the recovery or restoration of that species population, the authorized official shall determine and use an alternative method for confirming species identity that will be consistent with established management goals for that species.

[51 FR 27725, Aug. 1, 1986, as amended at 53 FR 5175, Feb. 22, 1988; 59 FR 14283, Mar. 25, 1994]

§ 11.73 Quantification phase—resource recoverability analysis.

(a) *Requirement.* The time needed for the injured resources to recover to the state that the authorized official determines services are restored, rehabilitated, replaced, and/or the equivalent have been acquired to baseline levels shall be estimated. The time estimated for recovery or any lesser period of time as determined in the Assessment Plan must be used as the recovery period for purposes of § 11.38 and the Damage Determination phase, §§ 11.80 through 11.84.

(1) In all cases, the amount of time needed for recovery if no restoration, rehabilitation, replacement, and/or acquisition of equivalent resources efforts are undertaken beyond response actions performed or anticipated shall be estimated. This time period shall be used as the “No Action-Natural Recovery” period for purposes of § 11.82 and § 11.84(g)(2)(ii) of this part.

(2) The estimated time for recovery shall be included in possible alternatives for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources, as developed in § 11.82 of this part, and the data and process by which these recovery times were estimated shall be documented.

(b) *Restoration not feasible.* If the authorized official determines that restoration will not be technically feasible, as that phrase is used in this part, the reasoning and data on which

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this decision is based shall be documented as part of the justification for any replacement alternatives that may be considered or proposed.

(c) *Estimating recovery time.* (1) The time estimates required in paragraph (a) of this section shall be based on the best available information and where appropriate may be based on cost-effective models. Information gathered may come from one or more of the following sources, as applicable:

(i) Published studies on the same or similar resources;

(ii) Other data sources identified in § 11.72 of this part;

(iii) Experience of managers or resource specialists with the injured resource;

(iv) Experience of managers or resource specialists who have dealt with restoration for similar discharges or releases elsewhere; and

(v) Field and laboratory data from assessment and control areas as necessary.

(2) The following factors should be considered when estimating recovery times:

(i) Ecological succession patterns in the area;

(ii) Growth or reproductive patterns, life cycles, and ecological requirements of biological species involved, including their reaction or tolerance to the oil or hazardous substance involved;

(iii) Bioaccumulation and extent of oil or hazardous substances in the food chain;

(iv) Chemical, physical, and biological removal rates of the oil or hazardous substance from the media involved, especially as related to the local conditions, as well as the nature of any potential degradation or decomposition products from the process including:

(A) Dispersion, dilution, and volatilization rates in air, sediments, water, or geologic materials;

(B) Transport rates in air, soil, water, and sediments;

(C) Biological degradation, depuration, or decomposition rates and residence times in living materials;

(D) Soil or sediment properties and adsorption-desorption rates between soil or sediment components and water or air;

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(E) Soil surface runoff, leaching, and weathering processes; and

(F) Local weather or climatological conditions that may affect recovery rates.

[51 FR 27725, Aug. 1, 1986, as amended at 59 FR 14283, Mar. 25, 1994; 61 FR 20612, May 7, 1996]

§ 11.80 Damage determination phase—general.

(a) *Requirement.* (1) The authorized official shall make his damage determination by estimating the monetary damages resulting from the discharge of oil or release of a hazardous substance based upon the information provided in the Quantification phase and the guidance provided in this Damage Determination phase.

(2) The Damage Determination phase consists of § 11.80—general; § 11.81—Restoration and Compensation Determination Plan; § 11.82—alternatives for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources; § 11.83—cost estimating and valuation methodologies; and § 11.84—implementation guidance, of this part.

(b) *Purpose.* The purpose of the Damage Determination phase is to establish the amount of money to be sought in compensation for injuries to natural resources resulting from a discharge of oil or release of a hazardous substance. The measure of damages is the cost of restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the injured natural resources and the services those resources provide. Damages may also include, at the discretion of the authorized official, the compensable value of all or a portion of the services lost to the public for the time period from the discharge or release until the attainment of the restoration, rehabilitation, replacement, and/or acquisition of equivalent of the resources and their services to baseline.

(c) *Steps in the Damage Determination phase.* The authorized official shall develop a Restoration and Compensation Determination Plan, described in § 11.81 of this part. To prepare this Restoration and Compensation Determination Plan, the authorized official shall develop a reasonable number of possible alternatives for restoration, rehabilita-

tion, replacement, and/or acquisition of equivalent resources and select, pursuant to the guidance of § 11.82 of this part, the most appropriate of those alternatives; and identify the cost estimating and valuation methodologies, described in § 11.83 of this part, that will be used to calculate damages. The guidance provided in § 11.84 of this part shall be followed in implementing the cost estimating and valuation methodologies. After public review of the Restoration and Compensation Determination Plan, the authorized official shall implement the Restoration and Compensation Determination Plan.

(d) *Completion of the Damage Determination phase.* Upon completion of the Damage Determination phase, the type B assessment is completed. The results of the Damage Determination phase shall be documented in the Report of Assessment described in § 11.90 of this part.

[59 FR 14283, Mar. 25, 1994]

§ 11.81 Damage determination phase—restoration and compensation determination plan.

(a) *Requirement.* (1) The authorized official shall develop a Restoration and Compensation Determination Plan that will list a reasonable number of possible alternatives for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources and the related services lost to the public associated with each; select one of the alternatives and the actions required to implement that alternative; give the rationale for selecting that alternative; and identify the methodologies that will be used to determine the costs of the selected alternative and, at the discretion of the authorized official, the compensable value of the services lost to the public associated with the selected alternative.

(2) The Restoration and Compensation Determination Plan shall be of sufficient detail to evaluate the possible alternatives for the purpose of selecting the appropriate alternative to use in determining the cost of restoration, rehabilitation, replacement, and/or acquisition of equivalent resources for the injured natural resources and the services those resources provided, and, where relevant, the compensable